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What Every Hospitalist Should Know About Type 2 Diabetes Therapies

Fundamentals

Context: There are newer classes of medications over the past 5-10 years and more classes
Current: These medications that can reduce the onset or progression of comorbidities
Cutting Edge: Patient centered/ individualized care is key, it's not just about the A1C target but reducing comorbidities as well.

Major Glucose Drug Lowering Classes

Context: ADA guidelines tell us to address cardiovascular disease
Current: A new focus on the cardiovascular and renal complications of diabetes, and the use of two categories of medications — the GLP-1 receptor agonists and the SGLT2 inhibitors.
Cutting Edge: New trials have underscored the linkages between cardiology, endocrinology, and nephrology. Its not just lowering glucose and getting the A1C low that provides beneficial effects on the heart and kidneys BUT newer medications have mechanisms to lower glucose, reduce cardiovascular and renal comlpications, and help weight loss

Major Glucose Lowering Drugs Classes for T2DM

Classes	Generic Names	↓A1c	Mechanism(s)	Positive(s)	Negative(s)	Cost
Insulin	Degludec, Glargine, Detemir, NPH, Regular, Lispro, Aspart, Glulisine	No limit	Replaces deficient insulin supply	No ceiling; most titratable agent	Hypo, weight gain	highly variable
SU	Glyburide, Glipizide, Glimepiride	1-1.5%	↑ endogenous insulin production	Extensive experience	Hypo, weight gain	$
Metformin	Metformin	1-1.5%	↓ hepatic glucose production (? others)	±Wt loss, no hypo, ↓ CV events (?)	GI, lactic acidosis, B-12 deficiency	$
TZD	Rosiglitazone, Pioglitazone*	1-1.5%	Enhances peripheral insulin sensitivity	Durability, no hypo, ↓ CV events*, ↓ NASH	Weight gain, edema, HF, bone fxs, ?bladder ca*	$ - $$$
DPP-4 i	Sitagliptin, Saxagliptin, Alogliptin, Linagliptin	0.5-1%	↓ DPP-4 activity and ↑ incretins (GLP1, GIP)	Well-tolerated; no hypo	Urticaria, ? pancreatitis, ? HF*	$$$$
GLP-1[a] RA [a](+GIP)	Exenatide, Liraglutide*, Dulaglutide*, Albiglutide*, Lixisenatide, Semaglutide*; Tirzepatide[a]	1-1.5%	↑insulin, ↓ glucagon, ↓ gastromotility, ↓ hunger	Wt loss, no hypo, ↓ BP, ↓ MACE*	GI, ? Pancreatic/ biliary disease, ? medullary thyroid ca	$$$$
SGLT2-i	Canagliflozin*†#‡, Dapagliflozin†# Empagliflozin*†#, Ertugliflozin	0.5-1%	↑ urinary glucose excretion	Wt loss, no hypo, ↓ BP, ↓ MACE*, HF†, ↓ CKD#	Polyuria, GU, DKA, bone fxs‡, amputations‡	$$$$

Home to Hospital: Usual default is to hold home regimen, place on S/S insulin or low-dose 'physiological'* insulin therapy: If stable/eating, can continue home regimen# but consider decreasing insulin/SU doses (hypo risk.), Use inpatient setting to reassess the home regimen (3 *C*'s: *C*ompliance? *C*ontrol? *C*omorbidities?) Assess need for brief inpatient diabetes education ('survival skills')

Hospital to Home: Be proactive, start thinking about the D/C regimen soon after admission. Consider what patient can handle at home (especially re: insulin regimen). Assess success of DM regimen (3 *C*'s: *C*ompliance? *C*ontrol? *C*omorbidities?). Starting new agents @D/C may be logistically challenging – so at least provide advice about what an optimal DM regimen for the patient should be. Ensure adequate follow-up for outpatient DM care. D/C with proper Rx's (meds, supplies)

References: Vaduganathan M, Docherty KF *et al. Lancet* 2022;400:757-67,, Davies M, *et al. Diabetes Care* 2022;